Handheld RFID Reader
Model 702 and Model 802

Owners Manual

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Table of Contents

Safety Information 1

Intended Use 1

Safety messages 2

Important Notes 3

Safety label locations 4

EMC, USA, and Canada Compliance 5

Getting Started 6

Specifications 6

Handheld components 7

Controls and indicators 8

Using the Handheld Device for the first time 9

Inserting the memory card 10

Removing the memory card 11

Resetting the handheld 12

Resetting the handheld 12

Formatting a memory card 13

Adjusting the antenna 14

Cleaning the handheld 14

Storing the handheld 14

Battery Management 15

Battery charging guidelines 15

Battery use 15

Sleep Mode 15

Charging the battery 16

Replacing the battery 17

Requesting service 18

3M Service phone numbers 18

For software support 18

For service 18

To order parts 18

Ordering replacement parts 19

To order parts 19

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Safety Information

Read, understand, and follow all safety information contained in these instructions prior to installation of the 3M™ Handheld RFID Reader Model 702 and Model 802. Retain these instructions for future reference.

Intended Use

The 3M Handheld RFID Reader Model 702 and Model 802 are designed and tested for use in processing 3M™ RFID Tags. These tags are used to identify items, such as books, videocassettes, files, etc., for various users.

It has not been evaluated for other uses.

Explanation of Signal Word Consequences	
⚠ **DANGER:**	Indicates a potentially hazardous situation, which, if not avoided, will result in death or serious injury and/or property damage.
⚠ **WARNING:**	Indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury and/or property damage.
⚠ **CAUTION:**	Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury and/or property damage.
CAUTION:	Indicates a potentially hazardous situation, which, if not avoided, may result in property damage.

Explanation of Product Safety Label Symbols	
	Attention: Read accompanying documentation
	Warning: Risk of Electric Shock

Safety messages

⚠ WARNING

To reduce the risk associated with fire and explosion:

- Do not attempt to use a damaged battery pack, charger, or power supply;
- Do not allow battery pack to come in contact with water;
- Do not disassemble, crush, or incinerate the battery pack — at the end of service life, dispose of the battery pack in accordance to federal, state and local requirements;
- Replace battery pack with Molicel MCR-1821 type battery pack only;
- Do not store the battery pack in areas that may exceed temperatures of 100°C/212°F;
- Use the charger with the supplied power supply only.

To reduce the risk associated with hazardous voltage contained within the battery charger:

- Do not use the charger or power supply if the case or cord are damaged;
- Do not use in outdoor or wet environments;
- Do not attempt to service or repair the charger or power supply — no user serviceable parts inside.

⚠ CAUTION

To reduce the risk associated with repetitive strain injuries from overuse of the Handheld unit:

- Operation of the 3M™ Handheld RFID Reader may involve repeated body movements. To minimize possibility of Repetitive Stress Injury, avoid prolonged repetitive movements, rest when becoming fatigued and, when possible, alternate job functions with other people. Avoid awkward reaching for items.

To reduce the risk associated with environmental contamination from the potentially hazardous chemicals within the lithium-ion battery pack:

- At the end of service life, dispose of the battery pack in accordance with federal, state and local requirements.

To reduce the risk associated with environmental contamination from circuit boards containing lead-bearing solder within the Handheld:

- At the end of service life, dispose of the handheld unit in accordance with federal, state and local requirements.

Important Notes

Important notes summarize best practices that can help you avoid damaging the 3M™ Handheld RFID Reader Model 702 and Model 802 (Handheld) and/or corrupting data.

IMPORTANT NOTES!

Be careful not to damage the handheld.

- DO NOT drop the Handheld.
- DO NOT leave the Handheld in locations where it might fall.
- DO NOT leave the Handheld in direct sunlight.
- DO NOT expose the Handheld to heat.
- Only use the point of the stylus to touch the various buttons and checkboxes on the screen.
- Never use a pen, pencil, or other sharp object on the display screen.

Save all the original handheld packing materials.
You will need the packing materials if you return the Handheld for repair.

Do not over tighten the antenna adjustment screw.
Over tightening the antenna adjustment screw may damage the Handheld.

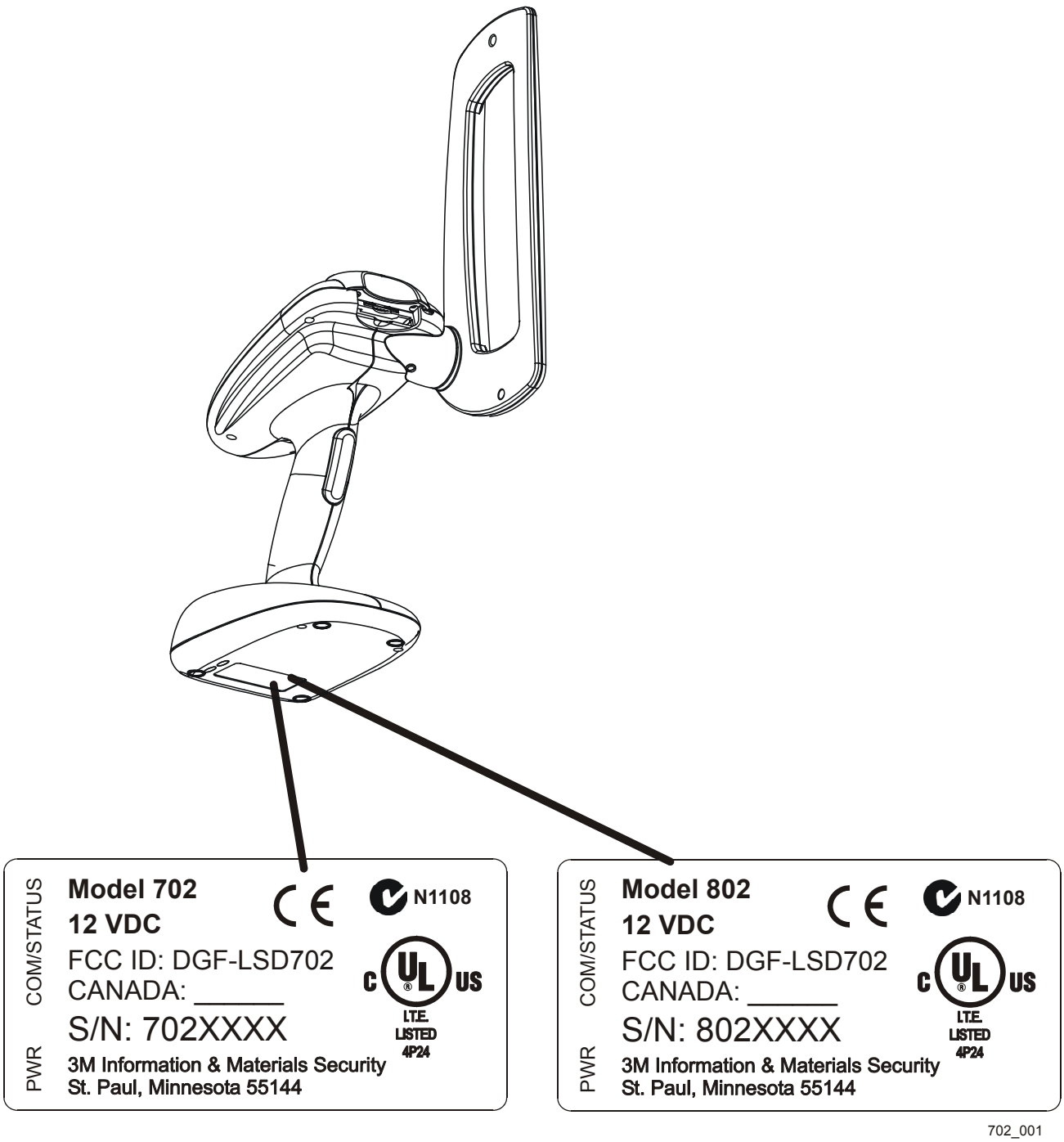
Always use the Change Battery function when you change the battery.
If you do not use the **Change Battery** function when changing the battery, you may lose collected data and/or corrupt the memory card. Also, you may have to reset the handheld.

Always return to the Home screen before removing the memory card.
This helps avoid corrupting data that you collected with the handheld and saved to the memory card.

Make sure that you use the correct RFID tags with your 3M™ Handheld RFID Reader.

- The Model 702 can only be used with systems that use **3M™ D1 RFID Tags**. (The Model 702 cannot read D8 tags.)
- The Model 802 can only be used with the 3M™ One-Tag RFID System that uses **3M™ D8 RFID Tags**. (The Model 802 cannot read D1 tags.)

Safety label locations



702_001

EMC, USA, and Canada Compliance

FCC Radio Frequency Rules and Regulations

This equipment has been tested and found to comply with the limits for a Class A device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can emit radiated radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Intentional Radiator Certification

FCC ID: DGF-LSD702

This equipment contains an intentional radiator approved by the FCC under the FCC ID number shown above. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NO MODIFICATIONS. Modifications to this device shall not be made without the written consent of The 3M Company. Unauthorized modifications may void the authority granted under Federal Communications Commission Rules permitting the operation of this device.

Industry Canada Radio Frequency Rules and Regulations

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numerique de la classe A respecte toutes les exigences du Reglement sur le materiel brouilleur du Canada.

CANADA: Pending

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

EMC Compliance Europe

This equipment complies with the requirements of the RATE and EMC directives.

Getting Started

The 3M™ Handheld RFID Reader Model 702 and Model 802 (Handheld) are used to read 3M™ RFID Tags placed in items such as books, videocassettes, files, etc.

The main difference between the Model 702 and Model 802 hardware is the type of RFID tag that they can read. In addition, they may run different software that performs different tasks.

- The Model 702 can only be used with systems that use **3M™ D1 RFID Tags**. (The Model 702 cannot read D8 tags.)
- The Model 802 can only be used with the 3M™ One-Tag RFID System that uses **3M™ D8 RFID Tags**. (The Model 802 cannot read D1 tags.)

IMPORTANT NOTE!
Save all the original handheld packing materials. You will need the packing materials if you return the Handheld for repair.

Specifications

Operating Temperature	Typical ambient temperature range: 50°F to 104°F (10°C to 40°C)
Storage Temperature	-40°F to 131°F (-40°C to 55°C)
Humidity	0% to 85% RAH, non-condensing
Memory Card	Type I or Type II CompactFlash™ card (A 64-MB memory card stores data for approximately 460,000 items.)
Battery type	Only use a Molicel MCR-1821 battery.
Battery charger	Only use a Molicel MAC-1821B battery charger.
Typical charge life	A fully charged battery will last for approximately three to four hours of "trigger time" (time the trigger is pressed or activated). This typically provides many hours (even a full day or two) of use before recharging is required.
Typical time to fully charge a battery	The battery charger will charge a fully discharged battery in approximately four hours.
Battery Charger Power	100-240 Vac, 1.0A, 50-60 Hz

Handheld components

IMPORTANT NOTE!
Be careful not to damage the handheld. ▪ DO NOT drop the Handheld. ▪ DO NOT leave the Handheld in locations where it might fall. ▪ DO NOT leave the Handheld in direct sunlight. ▪ DO NOT expose the Handheld to heat. ▪ Only use the point of the stylus to touch the various buttons and checkboxes on the screen. ▪ Never use a pen, pencil, or other sharp object on the display screen.

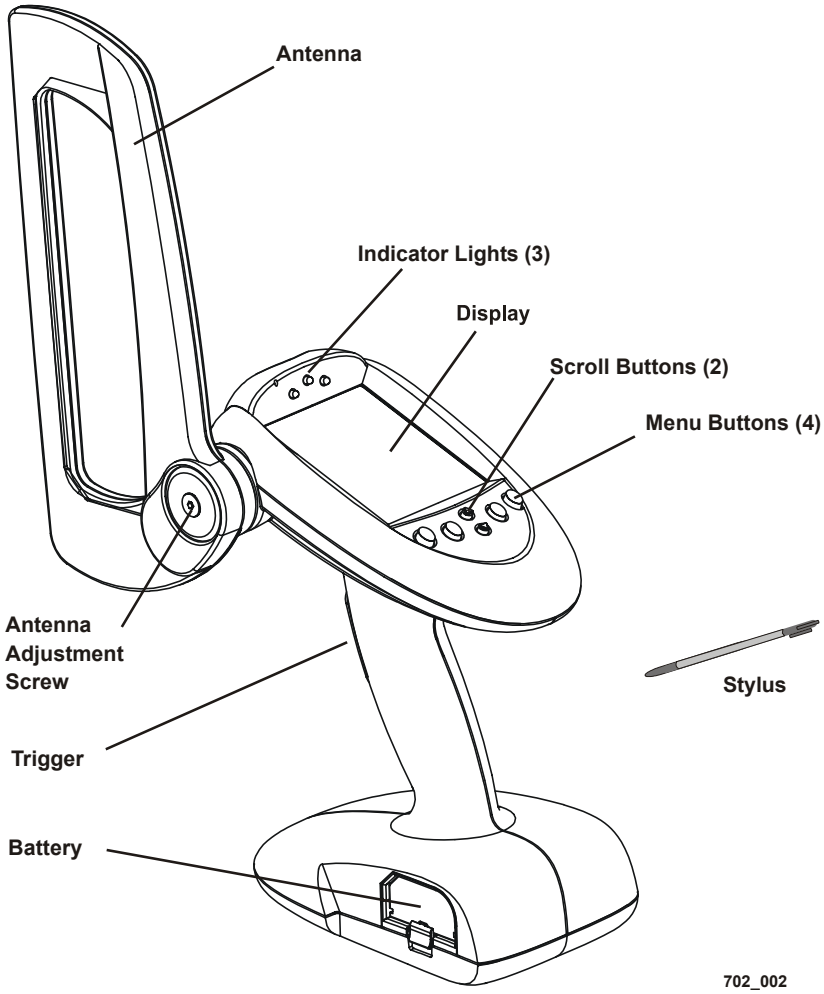


Figure 1: Handheld components.

Controls and indicators

The handheld display includes menu selections and setup screens with various checkboxes.

- Most tasks are selected using the **menu buttons**. You can also use the **stylus** to select various handheld functions.
- Use the **stylus** to check and uncheck the various checkboxes that appear in the setup screens.

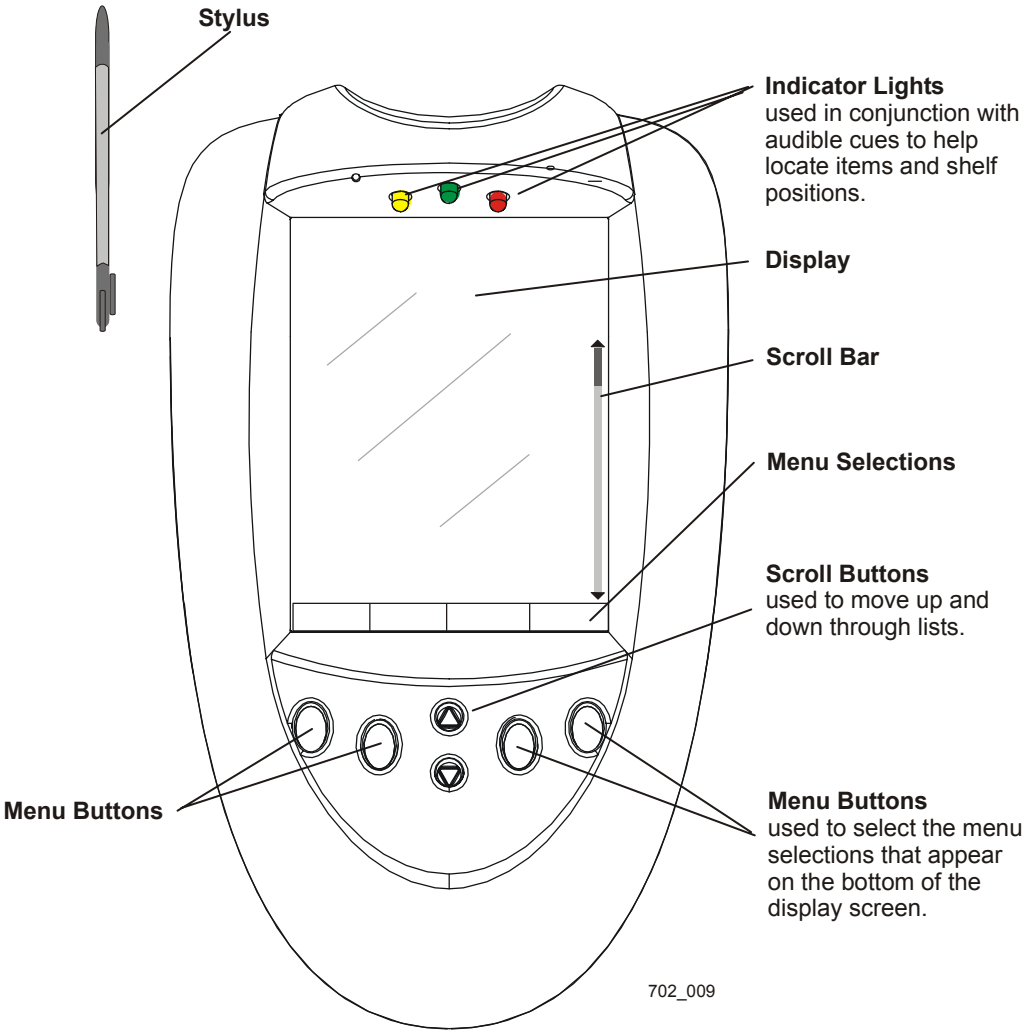

Stylus
Indicator Lights
used in conjunction with audible cues to help locate items and shelf positions.
Display
Scroll Bar
Menu Selections
Scroll Buttons
used to move up and down through lists.
Menu Buttons
Menu Buttons
used to select the menu selections that appear on the bottom of the display screen.
702_009

Figure 2: The handheld includes a menu-driven display screen.

Using the Handheld Device for the first time

Step 1 – Use your system software to export your data and 3M Handheld software onto a memory card. (See your Software User Manual.)

1 Install the **Handheld software** (located on the CD-ROM delivered with the handheld) on the same computer where you installed your system software.

2 Export **Handheld software** onto a memory card.
- This occurs automatically whenever you export data to a memory card.

3 Insert the memory card into the handheld.
- See **Inserting the memory card** on page 10.

Step 2 – Charge the battery and insert it into the handheld.

1 See **Charging the battery** on page 16.

2 Insert the charged battery into the handheld.

Step 3 – Calibrate the screen

1 Press the **Reset** button (located on the bottom of the handheld near the antenna).

2 Follow the instructions to calibrate the screen using the handheld stylus.
- Tap **Next** at the **Country/Date/Time** screen.
- Tap **Done** at the **Setup Complete** screen.

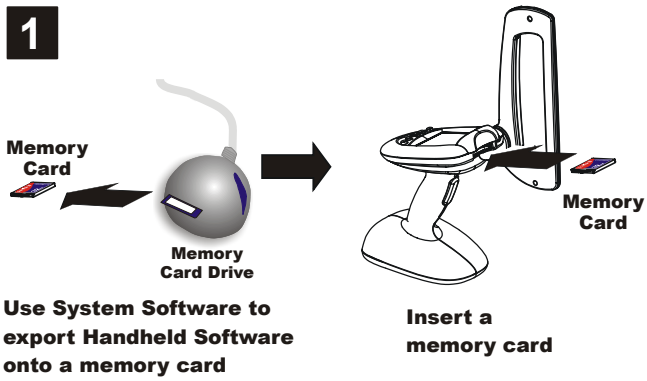
Step 4 – Load and set up 3M software

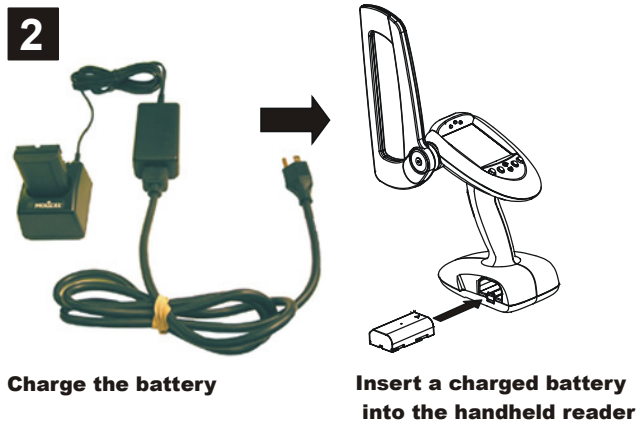
1 Press and release the trigger on the handheld to load software into RAM (takes approximately 15 seconds) and display the **Palm Preferences** screen.
- Continue to the next step without setting any preferences.

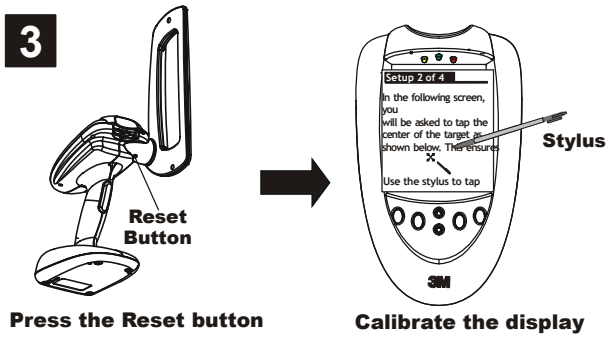
i If the 3M software does not load, perform the reset procedure on page 12 and try again.

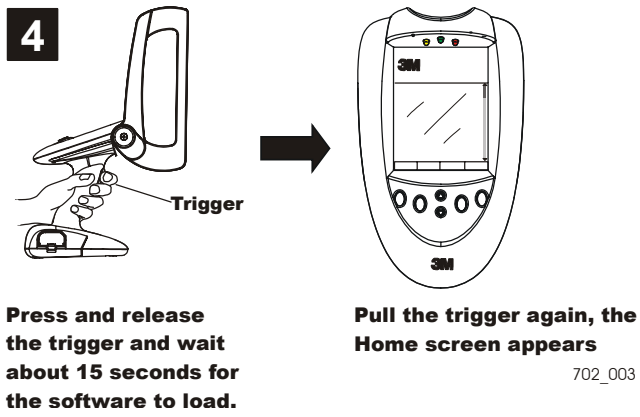
2 Press and release the trigger on the handheld again to display the **3M Software Home** screen. (You may have to set the time functions before the Home screen appears.)

3 Refer to the *3M Handheld Software Manual* for Staff and Admin Setup procedures.






3
Reset Button
Press the Reset button
Setup 2 of 4
In the following screen, you will be asked to tap the center of the target as shown below. This ensures
Use the stylus to tap
Stylus
3M
Calibrate the display


4
Trigger
Press and release the trigger and wait about 15 seconds for the software to load.
3M
3M
Pull the trigger again, the Home screen appears

702_003

Inserting the memory card

The memory card contains the data and Handheld software required for operation.

1 - Install a pull tab on the memory card

The handheld includes a number of pull tabs that you can attach to various memory cards. These pull tabs can make removing memory cards easier.

For reliable operation, 3M recommends using only SanDisk memory cards and SanDisk memory-card readers.

2 – Insert the memory card

1 Grasp the memory card with the label side up.

2 Push the pin-socket end of the memory card into the **memory-card slot** until it is completely inserted.

- Messages (such as loading the database, etc.) appear on the screen.
- If the memory card contains a newer version of 3M software, a dialog box will ask you if you want to install the new version.

Above the memory-card slot is a Secure Digital (SD) card slot that is not used. A small plastic panel blocks the SD slot. If the panel becomes loose, push it back into place.

Database Errors

The handheld may display **No Database** or **Invalid Database** messages.

- These messages are usually the result of corrupted data on the memory card.
- If you see these messages, you may have to reformat the memory card (See **Formatting a memory card** on page 13.)

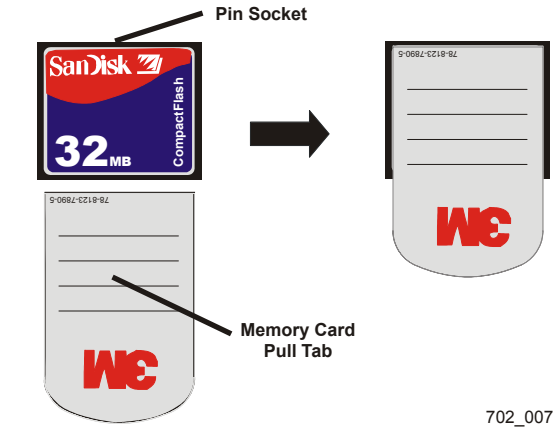


Figure 3: Attach the memory-card pull tab to the memory card.

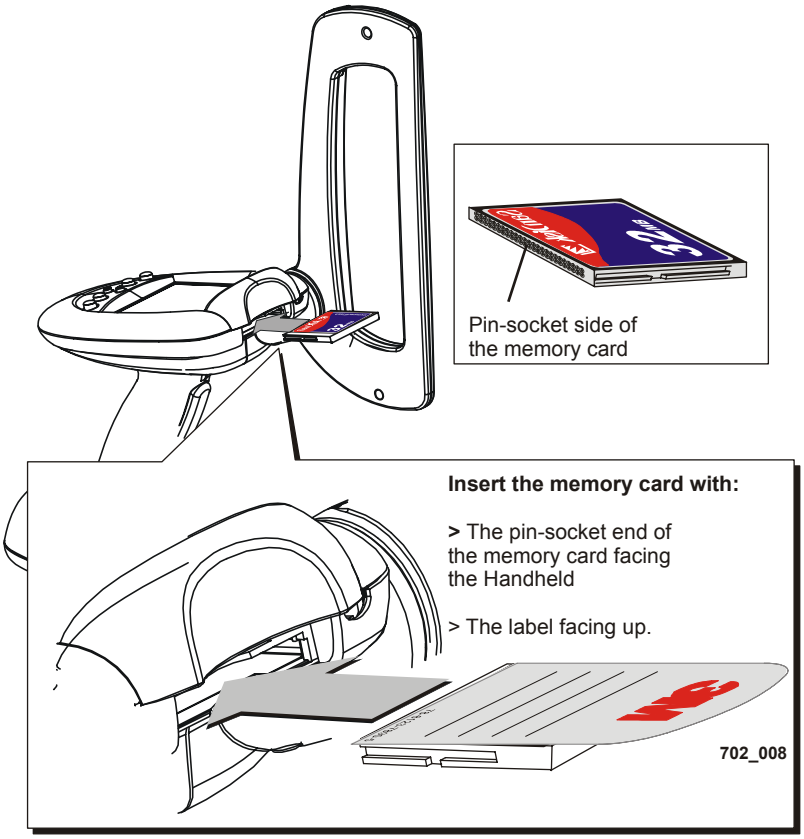

Pin-socket side of the memory card
Insert the memory card with:
> The pin-socket end of the memory card facing the Handheld
> The label facing up.
702_008

Figure 4: Insert the memory card as shown.

Removing the memory card

IMPORTANT NOTE!
Always return to the Home screen before removing the memory card. This helps avoid corrupting data that you collected with the handheld and saved to the memory card.

Procedure

1 Press **Home** to return to the Home screen.

- This ensures that the handheld finishes any write activities before you attempt to remove the memory card.

2 Grasp the memory card and pull it straight out from the handheld.

- To make it easier to remove a memory card, attach a memory-card pull tab to the memory card.

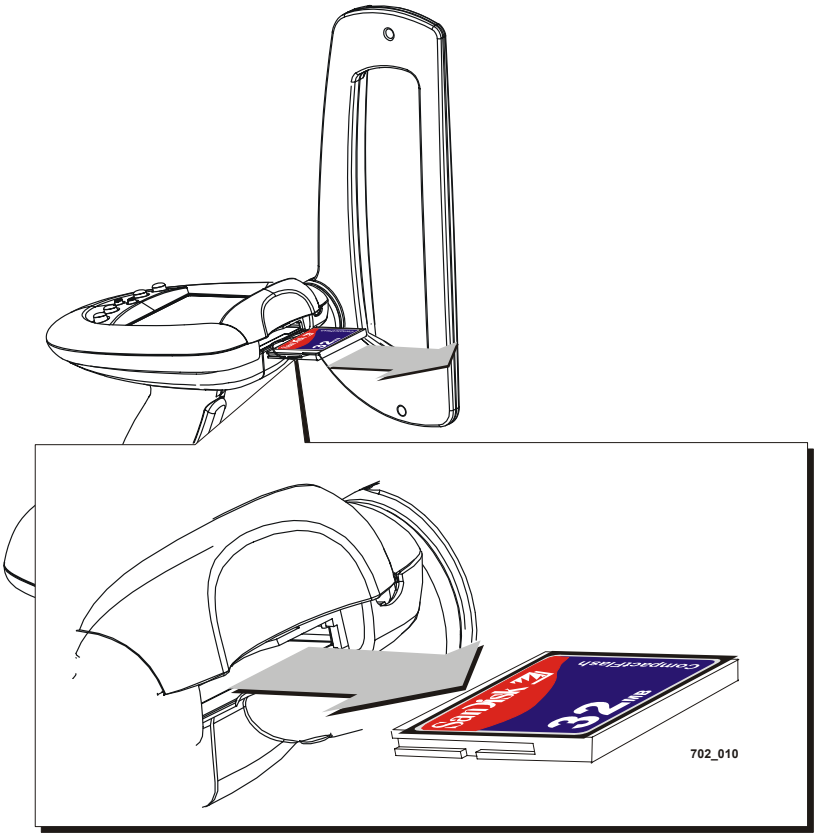


Figure 5: Return to the 3M software Home screen before removing the memory card from the handheld.

Resetting the handheld

If the handheld display locks up or stops working, perform the reset procedure described below.

Symptoms may include:

- The power will not come on (screen remains blank).
- Lines appear on the display or the display is distorted.
- A blinking black square appears in the upper left corner of the display.
- The Palm startup screen appears on the display and will not go away.

A blank screen may be caused by a fully discharged battery.

To reset the handheld

1. Insert a memory card (with 3M Handheld software on it) into the handheld.
2. Press and hold the **reset button** for approximately one second.
   - The **Preferences** screen appears.
3. Press the trigger.
   - **a** The Handheld software loads.
   - **b** The Home screen appears.

If pressing the reset button did not work...

1. Insert a memory card (with 3M Handheld software on it) into the handheld.
2. Remove the battery for approximately five minutes.
3. Insert a **fully charged** battery.
4. Follow the **Using the Handheld Device for the first time** procedure on page 9.

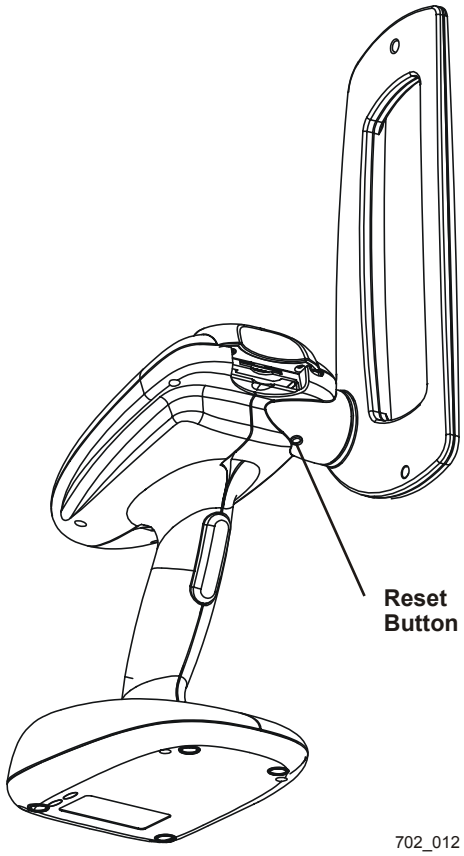


Figure 6: Handheld reset button.

Formatting a memory card

If the Handheld displays database error messages when you insert the memory card, try reformatting the memory card.

If this procedure does not work, call 3M Service. (See **Requesting service** on page 18.)

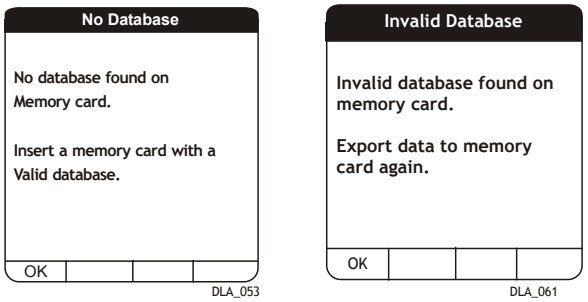


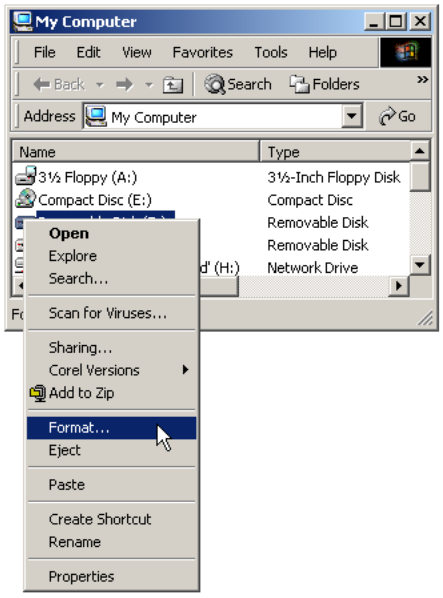
Figure 7: If the Handheld displays database error messages when you insert the memory card, try reformatting the memory card.

Using Windows to format the memory card

1 Double-click the **My Computer** icon on your computer's desktop.

2 Right click on the memory-card icon and select **Format**.

- The **Format** dialog box appears.
- Leave the other settings at their default state.



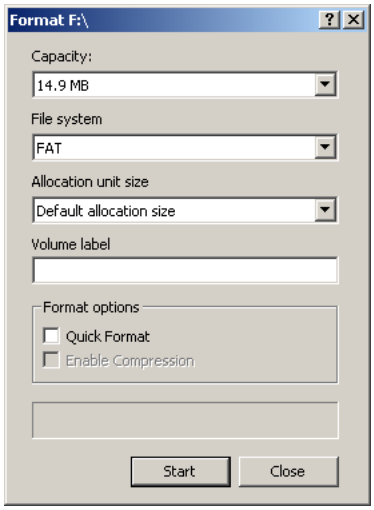
3 In the **File System** list box, select **FAT**.

4 Click **Start**.

5 After formatting is complete, use your system software to export information to the memory card.

6 Insert the memory card into the Handheld.

- If the Handheld reads the memory card, the formatting was successful.
- If the Handheld displays "No Database" or "Invalid Database" messages, call 3M Service. See **Requesting service** on page 18 for phone numbers.



Adjusting the antenna

If necessary, use the **antenna adjustment tool** (shipped with the Handheld) to carefully adjust the swivel tightness of the handheld antenna.

If the antenna is too loose

- Use the **antenna adjustment tool** to **tighten** (turn clockwise) the antenna adjustment screw slightly until the antenna swivels properly.
- Be careful to only turn the adjustment screw the minimum amount needed to tighten the handheld antenna swivel.

If the antenna is too tight

- Use the **antenna adjustment tool** to **loosen** (turn counterclockwise) the antenna adjustment screw slightly until the antenna swivels properly.

IMPORTANT NOTE!

Do not over tighten the antenna adjustment screw. Over tightening the antenna adjustment screw may damage the Handheld.

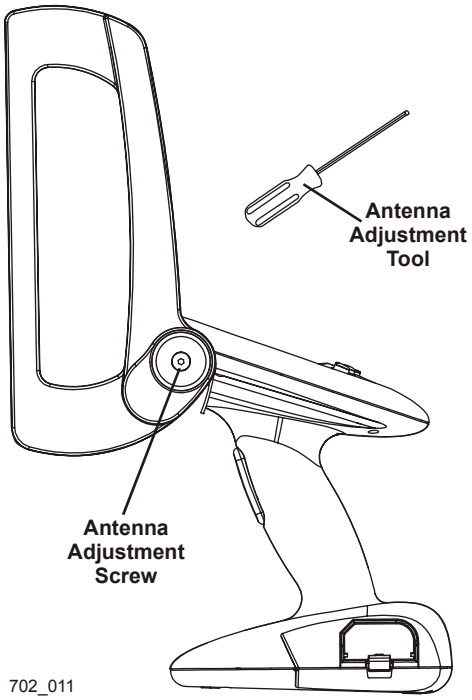


Figure 8: Use the antenna adjustment tool to adjust the antenna.

Cleaning the handheld

The handheld may need occasional cleaning.

- Gently rub the handheld with a soft cloth dampened with a mild cleaning solution. Make sure that no liquids enter the handheld case.
- DO NOT spray cleaning solution directly on the handheld.

Storing the handheld

During storage, the handheld continues to use a small amount of battery power. Over time (approximately one week), the battery can lose its charge, requiring you to perform a reset.

Storing the handheld for less than a week

Install a fully charged battery into the handheld.

- To start using the handheld, press and release the trigger.

Storing the handheld for more than a week

Remove the battery from the handheld when storing it for more than a week.

- After storage, insert a fully charged battery and perform the **Resetting the handheld** procedure on page 12.

Battery Management

The handheld is powered by a rechargeable lithium-ion battery that must be periodically charged.

Battery charging guidelines

- Batteries may be charged overnight or for extended periods.
- Batteries do not have to be discharged before recharging them.
- Batteries may be plugged in for any amount of time to partially recharge the battery.

Always keep one of the two batteries fully charged in the battery charger. At the end of each workday, you may want to replace the battery with a fully charged battery and charge the other battery.

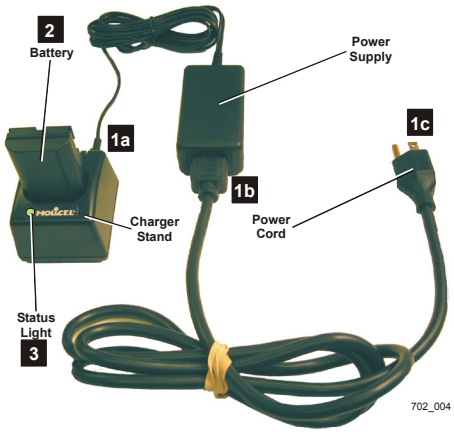


Figure 9: Battery charging system.

Battery use

Typical charge life

A fully charged battery typically provides several hours of use before recharging is needed.

Checking the battery charge

The upper right hand corner of each task screen includes a graphical battery charge indicator (battery gauge).

- The battery gauge shows how much of a charge remains in the battery that is currently being used. (See Figure 10.)
- If the battery gauge shows less than 50% charge remaining, you may want to replace the battery with a fully charged battery and place the other battery in the charger.

Low battery warning messages

- The handheld warns you when battery power is low. You should replace the battery if a “battery low” message appears.
- Handheld software protects you from totally losing power by requiring that the battery be changed or recharged when the charge drops to a very low level.

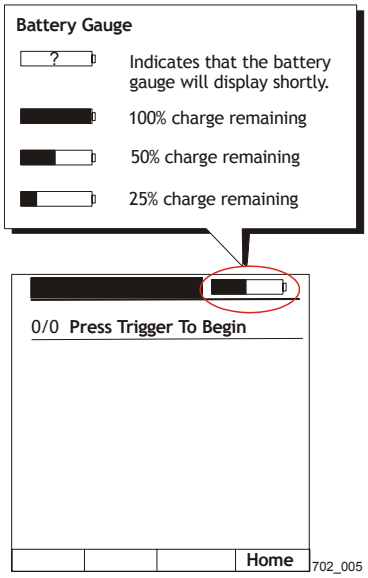


Figure 10: The battery gauge shows how much charge remains in the battery.

Sleep Mode

Once the battery is charged and installed, the handheld is ready to use at all times.

- To conserve battery charge, the handheld will enter **“sleep mode”** after approximately two (2) minutes of no activity. During sleep mode, the screen will go blank.

To bring the handheld out of sleep mode, press the trigger.

- The display will revert to the last function that was used.

Charging the battery

Always keep one of the two batteries fully charged in the battery charger.

- The typical charge time is four hours.

To charge a battery

1 Connect the battery charger.

a Connect the **power supply output** to the charger stand.

b Plug one end of the **power cord** into the power supply.

c Plug the other end of the **power cord** into an AC power source: (100-240 Vac, 1.0A, 50-60 Hz).

- The **status light** is **Green** when no battery is inserted into the charger stand.

2 Insert a single battery into the battery charger stand.

- Ensure that the two gold contacts on the battery are placed face down into the charger stand.
- The **status light** will change to **Red** to indicate that the battery is charging.

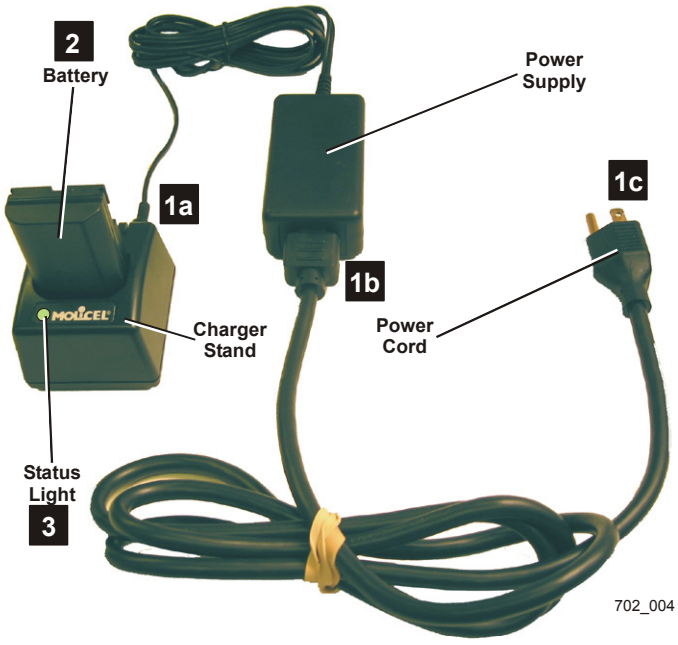


Figure 11: Connect the battery charger as shown.

3 The status light changes from **Red** to **Green** when the battery is fully charged.

Battery Charger Status Light	
Red	indicates that the battery is being charged.
Green	indicates that the battery is charged or that there is no battery inserted in the charger stand.

⚠ WARNING

To reduce the risk associated with fire and explosion:

- Do not attempt to use a damaged battery pack, charger, or power supply;
- Do not allow battery pack to come in contact with water;
- Do not disassemble, crush, or incinerate the battery pack — at the end of service life, dispose of the battery pack in accordance to federal, state and local requirements;
- Replace battery pack with Molicel MCR-1821 type battery pack only;
- Do not store the battery pack in areas that may exceed temperatures of 100°C/212°F;
- Use the charger with the supplied power supply only.

To reduce the risk associated with hazardous voltage contained within the battery charger:

- Do not use the charger or power supply if the case or cord are damaged;
- Do not use in outdoor or wet environments;
- Do not attempt to service or repair the charger or power supply — no user serviceable parts inside.

Replacing the battery

Battery replacement

Most software options are protected if all power is lost.

If a battery is removed and replaced in approximately one minute, the handheld will continue to function without interruption.

If a battery is removed for more than one minute, you may have to initialize the screen and reset the time, and date parameters.

Removing the battery

1 From the 3M software's **Home** menu, select **Change Battery**.

Important Note! - If you do not use the **Change Battery** function, you may lose collected data and/or corrupt the memory card. Also, you may have to reset the handheld.

2 When the screen goes blank, it is safe to remove the battery.

3 Push the **battery tab** down, away from the battery.

4 Slide the battery out of the battery holder.

- **If a battery is removed and replaced within approximately one minute,** the handheld will continue to function without interruption.
- If necessary, perform the **Resetting the handheld** procedure on page 12.

Installing the battery

1 Insert the battery into the battery holder as shown.

2 Make sure that the **battery tab** securely holds the battery in place.

⚠ WARNING

To reduce the risk associated with fire and explosion:

- Do not attempt to use a damaged battery pack, charger, or power supply;
- Do not allow battery pack to come in contact with water;
- Do not disassemble, crush, or incinerate the battery pack — at the end of service life, dispose of the battery pack in accordance to federal, state and local requirements;
- Replace battery pack with Molicel MCR-1821 type battery pack only;
- Do not store the battery pack in areas that may exceed temperatures of 100°C/212°F;
- Use the charger with the supplied power supply only.

To reduce the risk associated with hazardous voltage contained within the battery charger:

- Do not use the charger or power supply if the case or cord are damaged;
- Do not use in outdoor or wet environments;
- Do not attempt to service or repair the charger or power supply — no user serviceable parts inside.

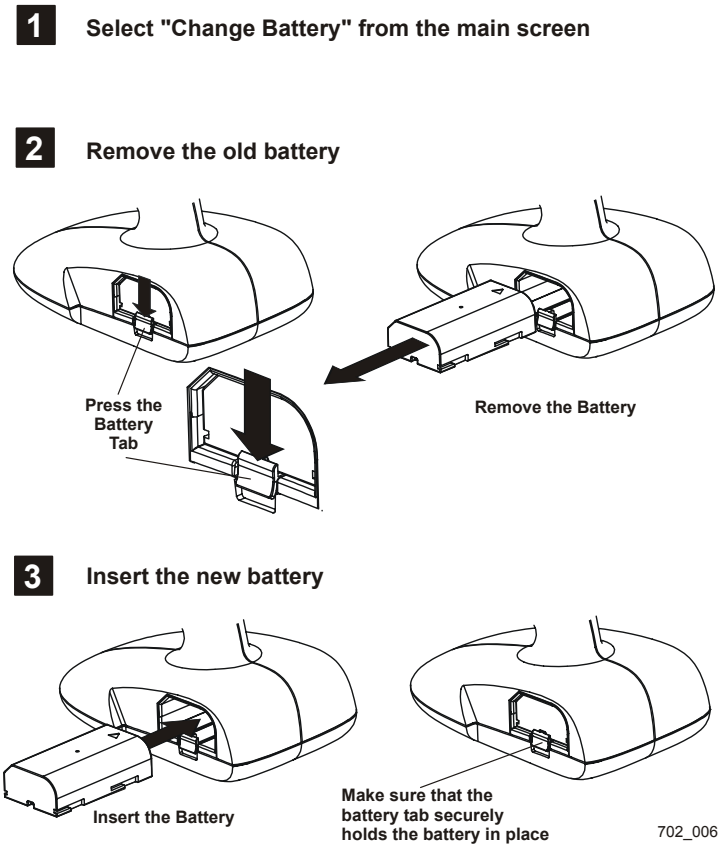


Figure 12: Before removing a battery, select Change Battery.

Requesting service

Before you call

Before you call 3M Service, have the following information available:

- Have the Handheld near the phone.
- Write down the Handheld's serial number (located on the bottom of the Handheld).
- Be ready to describe the problem and any error messages in detail.
- Write down the software version. (From the Handheld's **Home** screen, select **About** to display the software version number.)

Return for repair

If repairs are necessary, call 3M Service and the 3M-service representative will explain how to package and return the handheld.

- Save all the original handheld packing materials so you can properly pack the unit if you need to return it for repair.

3M Service phone numbers

For software support

In the United States

Library Systems: 1-800-328-0067 (Option 1)

3M™ RFID Tracking System: 1-800-944-3512 (Option 2)

In Canada

Library Systems and 3M™ RFID Tracking System (English): 1-800-561-5115 Ext 3770

Library Systems and 3M™ RFID Tracking System (Français): 1-800-361-4488 Ext 4766

In other countries

Call your local 3M office.

For service

In the United States

Library Systems: 1-800-328-0067 (Option 1)

3M™ RFID Tracking System: 1-800-944-3512 (Option 2)

In Canada

Library Systems and 3M™ RFID Tracking System (English): 1-800-268-6235

Library Systems and 3M™ RFID Tracking System (Français): 1-800-567-3193

In other countries

Call your local 3M office.

To order parts

See **Ordering replacement parts** on page 19 for part numbers and phone numbers.

Ordering replacement parts

The following consumable parts may be ordered separately:

Stock Number	Description
78-8123-7939-0	Battery
78-8123-7940-8	Battery charger assembly
26-1014-9577-3	Antenna-adjustment tool
78-8123-7890-5	Memory-card removal tab
26-1017-1145-0	64-MB memory card
26-1014-9616-9	Replacement stylus three pack

To order parts

Call the following phone numbers to order the parts listed above.

In the United States

Library Systems: 1-800-328-0067 (Option 2)

3M™ RFID Tracking System: 1-800-944-3512 (Option 3)

In Canada

Library Systems and 3M™ RFID Tracking System (English/Français): 1-800-410-6880

In other countries

Call your local 3M office.